**Japanese Patent Kokai No. Hei 2-154991**

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FIGURE 1

A transfer wall 1 consists of a rigid wall body 2, a heat transfer surface 3 forming a surface of the wall body 2, and numerous soft small diametral fibers 4 implanted on the heat transfer surface 3. The heat transfer surface 3 forms a heat transfer fluid pathway 5 of heat transfer fluid A. Each of the small diametral fibers 4 has a hair-like projecting body standing up within a flow 6 of the heat transfer fluid A.

Each small diametral fiber 4 is made of metal with a thickness of 35μ, for example, and has flexibility swinging or swaying within the fluid pathway depending on a fluid speed. The height of the fibers preferably exceeds a border layer of the flow 6 of the heat transfer fluid A.

In the heat transfer wall 1 with the above constitution, the heat transfer in a vicinity of the heat transfer surface 3 can be promoted by means of the fin effect of the small diametral fibers 4, swinging phenomena due to the flowing force, and restoring force of the fibers 4.

FIGURE 2

As shown in FIGURE 2, the heat transfer occurs when the fluid A creates the flow 6 on the heat transfer surface 3 of the wall body 2 in which the small diametral fibers 4 are implanted. The small diametral fibers 4 and the heat transfer surface 3 together contribute heat transmission. By means of the fin effect of these small diametral fibers 4, good heat transfer performance is obtained.

The small diametral fibers 4 implanted on the heat transfer surface 3 of the rigid wall body 2 are soft and flexible. Thus, the fibers are swung by the flowing force of the flow 6 of the heat transfer fluid A and laid upon the surface 3. When the flow speed of the flow 6 is changed due to pulsation and the like of a driving source sending the heat transfer fluid A, the restoring force is exerted by the recovering force of the small diametral fibers 4 going to stand up, whereby the small diametral fibers 4 generate one kind of swinging phenomena. Thereby, the flow 6 is disturbed in a vicinity of the heat

transfer surface 3 by this behavior, and a heat resistant layer is eliminated, whereby heat transfer efficiency from the heat transfer surface 3 of the wall body 2 to the heat transfer fluid A is improved.

In summary, the heat transfer characteristic of the heat transfer wall 1 is enhanced by means of the swinging phenomena of the small diametral fibers 4 and the fin effect. It is regardless to say that the heat transfer surfaces may be formed on both surfaces of the wall body 2 on which the small diametral fibers 4 are implanted.

FIGURE 17

FIGURE 17 shows the simplest form of metallic small diametral fibers 4.

FIGURE 18

FIGURE 18 shows small diametral fibers 4a having split hairs at a tip of each fiber.

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